LOMAKIN, A.T.; SANZHAROVSKIY, A.T.

Changes occurring in the mechanical properties of the films of epoxy and polyester coatings during their hardening. Lakokras.-mat.i ikh prim. no.6:23-27 '62. (MIRA 16:1)
(Protective coatings—Testing)

YAKUBOVICH, D.S.; GROZINSKAYA, Z.P.; SANZHAROVSKIY, A.T.; ZUBOV, P.I.

Studying the physicomechanical properties of polyurethan coatings. Lakokras.mat.i ikh prim. no.6:32-37 '62. (MIRA 16:1)
(Protective coatings--Testing) (Ethyl carbamate)

SANZHAROVSKIY, A.T.; MASLENNIKOVA, N.L.; YAKUBOVICH, S.V.

Using the optical and console methods for investigating the inner stresses of polymer coatings. Lakokras.mat.i ikh prim. no.5:30-37 '62. (MIRA 16:1)

(Polymers) (Strains and stresses) (Protective coatings—Testing)

ZUBOV, P.I.; SANZHAROVSKIY, A.T.; DYL'KOV, M.S.

Investigating the adhesion of polymer coatings by means of various methods. Lakokras.mat. i ikh prim. no.2:48-55 '63. (MIRA 16:4)
(Adhesion) (Protective coatings--Testing)

Z/011/62/019/010/002/009
E112/E435

AUTHORS: Sanzharovskiy, A.T., Yepifanov, G.I., Lomakin, A.T.

TITLE: Internal stresses in surface coatings with polymers

PERIODICAL: Chemie a chemická technologie. Přehled technické a hospodářské literatury, v.19, no.10, 1962, 465, abstract Ch 62 6281. (Lakokras. Materialy, no.3, 1962, 21-31)

TEXT: Studies of internal stresses in coatings and paints made from polymers showed that they were caused by shrinkage taking place during drying and hardening. If the properties of the primer were without effect on the hardening mechanism, the characteristics of the primer would have no effect on the internal stresses. The latter decreased as the thickness of the surface coats and paints increased. Plasticizers lower considerably the modulus of elasticity of the coats and cause a reduction of the limit value of the internal stresses.
3 sketches, 19 diagrams, 1 table, 7 literature references.

[Abstracter's note: Complete translation.]

Card 1/1

MASLENNIKOVA, N.L.; YAKUBOVICH, S.V.; SANZHAROVSKIY, A.T.; RIVLINA, Yu.L.;
Prinimali uchastiye: EMMANUILOV, Yu.M.; KRUCHININA, G.I.;
ZAYTSEVA, L.V.

Internal stresses developed in the process of formation and aging of nitrocellulose coatings. Lakokras.mat.i ikh prim. no.1:15-18 '63. (MIRA 16:2)

(Paint materials)
(Strains and stresses)

LOMAKIN, A.T.; SANZHAROVSKIY, A.T.; ZUBOV, P.I.

Studying the physicomechanical properties of PE-220 lacquer coatings in the process of their formation. Lakokras. mat. i ikh prim. no.4:29-32 '63. (MIRA 16:10)

YAKUBOVICH, D.S.; SANZHAROVSKIY, A.T.; ZUBOV, P.I.

Studying the effect of the copper base structure on the adhesion to it of polyurethane coatings. Lakokras. mat. i ikh prim. no.5:30-33 '63. (MIRA 16:11)

GROZINSKAYA, Z.P.; SANZHAROVSKIY, A.T.; ZUBOV, P.I.

Thermal aging of nitrocellulose coatings. Koll.zhur. 25 no.3: 299-303 My-Je '63. (MIRA 17:10)

1. Institut fizicheskoy khimii AN SSSR, Moskva.

GROZINSKAYA, Z.P.; SANZHAROVSKIY, A.T.; ZUBOV, P.I.

Thermal aging of polyester coatings. Koll.zhur. 25 no.5:505-511 S-O '63. (MIRA 16:10)

1. Institut fizicheskoy khimii AN SSSR, Moskva.

ZUBOV, P.I.; GROZINSKAYA, Z.P.; SANZHAROVSKIY, A.T.

Effect of the duration of heating on the deformation properties of polymer films. Koll.zhur. 25 no.5:533-536 S-O '63. (MIRA 16:10)

1. Institut fizicheskoy khimii AN SSSR, Moskva.

ZUBOV, F.I.; GROZINSKAYA, Z.P.; SANZHAROVSKIY, A.T.

Studying polymeric coatings during the process of their aging.
Lakokras.mat. i ikh prim. no.2:33-36 '64. (MIRA 17:4)

YAKUBOVICH, S.V.; MASLENNIKOVA, N.L.; SANZHAROVSKIY, A.T.; Prinimali uchastiye: KRUCHININA, G.I.; DONDE, L.V.; KARYAKINA, L.A.

Studying the internal stresses and mechanical properties of paints based on cellulose nitrates during their atmospheric aging. Lakokras.mat. i ikh prim. no.2:37-40 '64. (MIRA 17:4)

ACCESSION NR: AP4018157 S/0191/64/000/003/0005/0009

AUTHORS: Zubov, P.I.; Grozinskaya, Z.P.; Sanzharovskiy, A.T.

TITLE: Thermal aging of polyethylene films.

SOURCE: Plasticheskiye massy*, no.3, 1964, 5-9

TOPIC TAGS: polyethylene, polyethylene film, polyethylene coating, internal stress, modulus of elasticity, tensile strength, elongation, thermal effect, thermal aging

ABSTRACT: The changes in internal stress, modulus of elasticity, tensile strength and elongation of polyethylene films and coatings with aging at temperatures from -60 to +100C were investigated. Rolling the films during forming improves their mechanical properties. The presence of a stabilizer (0.13% neozon A, 0.07% diphenyl-p-Phenylenediamine, and 1.5% gas black) in polyethylene raises its resistance to thermal aging, while the mechanical properties of unstabilized polyethylene are lowered in 20 days; the stabilized material does not change in 40 days. Thermal aging of polyethylene is analagous to that

Card 1/2

ACCESSION NR: AP4018157

of nitrocellulose and polyester coatings. Cooling the film strengthens the intermolecular interaction, increases the modulus of elasticity and strength, and also increases internal stresses which retard relaxation processes, and causing cracking and peeling. Heating will enhance relaxation of the internal stresses and close up the defects of the coating. Orig. art. has 11 figures.

ASSOCIATION: None

SUBMITTED: 00 DATE ACQ: 27Mar64 ENCL: 00

SUB CODE: MA, PH NR REF SOV: 001 OTHER: 000

Card 2/2

ACCESSION NR: AP4043821 S/0303/64/000/004/0034/0037

AUTHOR: Grinyute, G. A., Zubov, P. I., Sanzharovskiy, A. T.

TITLE: Analysis of the dependence of organic coating strength on time

SOURCE: Lakokrasochny*ye materialy* i ikh primeneniye, no. 4, 1964, 34-37

TOPIC TAGS: organic coating, nitrocellulose, nitro lacquer, nitrocellulose lacquer, synthetic automotive enamel, synthetic enamel binder, automotive enamel, polyester lacquer, film tensile strength, film rupture elongation, film stress rupture strength, film strength time dependence

ABSTRACT: Free films of nitrocellulose VNVA, nitro lacquer, nitrocellulose lacquers NTs-11-00 and NTs-11-46, binders for synthetic automotive enamels (melamine-formaldehyde + alkyd resins), white and green synthetic automotive enamels (set 10 hrs. at 125C), as well as polyester lacquer PE-220 (set 3 hrs. at 60 , 3 hrs. at 80 or heat cured 200 hrs. at 120C) were tested for tensile strength, rupture elongation and stress-rupture strength. Deformation curves and elastic modulus values were obtained after maintaining samples in a vacuum drier for 90 hrs. at 35C. The results indicate that rupture elongation is not governed by stress (0-8 kg/mm^2) in films with elongation values up to 5% and decreases with stress reduction in films with elongation values exceeding

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ACCESSION NR: AP4043821

6-7% Tensile strength was 3.7 and 8.25 kg/mm^2, respectively, for NTs-11-00 and cured Pe-220; stress-rupture strength (250 hrs.) ranged from 10% (Pe-220 set at 60C) to 54% (nitrocellulose) of the respective tensile strength, increased with the modulus of elasticity, and was shown to be governed by S. N. Zhurkov's equation $\tau = Ae^{-\alpha\sigma}$, where τ is time to rupture, σ is stress, and A and α are constants characterizing stress-rupture strength. Orig. art. has: 4 tables, 8 graphs and 1 formula.

ASSOCIATION: None

SUBMITTED: 00 ENCL: 00

SUB CODE: MT NO REF SOV: 009 OTHER: 000

2/2
Card

SANZHAROVSKIY, A.T.; DYL'KOV, M.S.; ZUBOV, P.I.

Effect of the thickness of the adhesive layer on the strength of glued joints. Plast.massy no.4:43-46 '64. (MIRA 17:4)

L 25063-65 EWT(m)/EPF(c)/EWP(v)/EPR/EWP(j)/T Pc-4/Pr-4/Ps-4 WW/RM

ACCESSION NR: AP5002214 S/0303/64/000/006/0017/0021

AUTHOR: Sanzharovskiy, A. T.; Dyl'kov, M. S.; Zubov, P. I.

TITLE: A study of the activation energy of adhesion bonds in polymeric coatings

SOURCE: Lakokrasochnyye materialy i ikh primeneniye, no. 6, 1964, 17-21

TOPIC TAGS: polymer coating, polymer adhesion, polymer film, adhesion activation energy, polyethylene adhesion, polymer steel adhesion

ABSTRACT: In order to investigate the effect of temperature on the adhesive strength of polyethylene coatings on steel, 4 types of stabilized and unstabilized coatings were prepared in powder form and applied to steel after melting. The coatings had a viscosity of 1.85 and the stabilizer was a mixture of 0.13% Neozone A, 0.07% diphenyl-p-phenylenediamine and 0.5% gas black. The specimens were tested in groups of 10 in a chamber at 205C for 2 hours and at 260C for brief periods. Their adhesion to steel was then found to be a log function of $\frac{1}{T}$, which agrees with the formula $\gamma = Ae^{\frac{U}{RT}}$ where A is a constant and U is the activation energy for disrupting the bond between the polymer and steel. In proportion to the tension applied, U for unstabilized polyethylene rose from 34 to 38 kcal/mole and that for stabilized coatings produced at 260C rose from 23 to 25 kcal/mole under a tension

Card 1/2

L 25063-65

ACCESSION NR: AP5002214

rising from 60 to 124 kg/cm^2. For stable polyethylene coatings produced at 205C, U rose from 25 to 28 and for unstabilized coatings it rose from 25 to 32 kcal/mole. These 4 groups of coatings were applied to flat steel plates after the surface had been carefully cleansed and degreased. A fifth group of pure polyethylene coatings was then applied to uncleansed steel, but showed low adhesion. All 5 groups lost adhesive strength substantially when heated, although the loss was not linear as the temperature rose to 120C. On the other hand, the activation energy of adhesion in 3 groups rose with temperature, but that in the other 2 groups remained about the same at 3.2 and 3.10 kcal/mole. The fifth group of pure

2 tables.

ASSOCIATION: None

SUBMITTED: 00 ENCL: 00 SUB CODE: MT

NO REF SOV: 009 OTHER: 004

Card 2/2

L 25062-65

ACCESSION NR: AP5002215

Abrasion resistance was tested by mechanical sanding. Aging was tested in a 50 x 50 x 60 cm chamber with two mercury-quartz lamps and a temperature of 40-45C. Wearing qualities were then tested in a Shopper AFGi abrasion apparatus and the wear measured by weighing the wooden samples before and after testing. A graph shows that abrasion of UR-19 was only 1 and 1.5 mg/cm^2 under a 0.5 kg load as against 4 mg for MCh-26; the PF-231 varnish peeled off at that point. Photochemical tests for aging showed that MCh-26 crumbled and peeled off the wood after 15 hours of abrasion, the PF-231 was worn through to the wood after 100 hours, but the UR-19 was hardly affected at all after 600 hours of abrasion. This fact was borne out by tests for hardness, elasticity, tensile strength and internal stress, made at set periods during the aging process. Infrared spectra were also recorded on all 3 types of floor varnish. Orig. art. has: 1 table, 3 formulas and 11 figures.

ASSOCIATION: None

SUBMITTED: 00 ENCL: 00 SUB CODE: MT

NO REF SOV: 024 OTHER: 002

Card 2/2

L 8532-65 EWT(m)/EPF(c)/EPR/EWP(j) Pc-4/Pr-4/Ps-4 ASD(m)-3/AFETR/RAEM(t)
RM/WW

ACCESSION NR: AP4043126 S/0069/64/026/004/0436/0440

AUTHOR: Dy*l'kov, M. S.; Sanzharovskiy, A. T.; Zubov, P. I.

TITLE: Effect of the thickness of adhesive and the adhesive solution concentration on the adhesive bond strength for normal pull

SOURCE: Kolloidny*y zhurnal, v. 26, no. 4, 1964, 436-440, and insert facing p. 436

TOPIC TAGS: adhesive, adhesive solution, gelatin, nitrocellulose, VS-10T adhesive, adhesive solution concentration, glue line, glue line thickness, internal stress, adhesive solution drying, adhesive joint, adhesive joint strength, polymer network

ABSTRACT: The effect of the adhesive-solution concentration and of the glue-line thickness on the process of formation of adhesive joints and the distribution of internal stresses in the glue line were studied for gelatin, nitrocellulose, and VS-10T adhesive. The glue lines were formed by bonding thick glass disks to thin glass disks. Internal stresses which develop in the process of drying were evaluated from the flexure of the thin disk (Fig. 1a of the Enclosure). The shape of the flexure curves is explained on the basis of the mechanism

Card 1/4

L 8532-65
ACCESSION NR: AP4043126

of the drying process of the adhesive. This process begins at the periphery of the glue line and causes first a contraction, then an expansion of the adhesive film (Fig.1b of the Enclosure). These processes cause important internal stresses in the glue line. These stresses reduce the strength of the adhesive joint considerably and can result in its spontaneous failure. The strength of adhesive joints increases with the concentration of the adhesive solution owing to an increase in the adhesive surface area and drops with increased thickness of the glue line owing to the formation of a less dense polymer network. The results of the experiments indicate that the stressed status of cured adhesives and adhesives formed from solutions differ. The stresses are distributed in a plane glue line of cured adhesives. The glue line of adhesives formed from diluted adhesive solutions is subject to compressive and tensile stresses. The stresses are distributed spatially. Orig. art. has 6 figures.

ASSOCIATION: Institut fizicheskoy khimii AN SSSR, Moscow (Institute of Physical Chemistry, AN SSSR)

Card 2/4

L 8532-65

ACCESSION NR: AP4043126 0

SUBMITTED: 09May63 ATD PRESS: 3096 ENCL: 01

SUB CODE: MT, SS NO REF SOV: 002 OTHER: 000

Card 3/4

ACCESSION NR: AP4043126 ENCLOSURE: 01

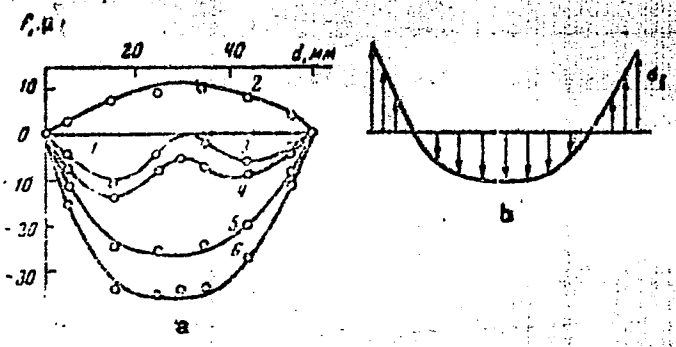

Fig. 1. Diagrams of the flexure of the thin glass disk resulting from drying of the adhesive (a) and of the internal stresses in the glue line (b)

1 - initial state; 2—6 - after drying for 10, 72, 150, 240, and 300 hr, respectively.

Card 4/4

ACCESSION NR: AP4022721 S/0020/64/155/002/0389/0391

AUTHOR: Dy*l'kov, M. S.; Sanzharovskiy, A. T.; Zubov, P.I.

TITLE: The effect of temperature on long-term adhesive strength of polyethylene.

Source: AN SSSR, Doklady*, v. 155, no. 2, 1964, 389-391

TOPIC TAGS: polyethylene, stabilized polyethylene, unstabilized polyethylene, adhesive strength, absolute temperature, gas constant, semilogarithmic coordinate, activation energy, linear relationship, plastic

ABSTRACT: The temperature-time dependence of adhesive strength was tested in a specially designed device with an air-controlled chamber which made it possible to test ten samples simultaneously under different temperatures and loads. The test samples were low-pressure stabilized and unstabilized polyethylene; the temperature-time relationship was found to be identical for both types of polyethylene. In the case of unstabilized polyethylene, the activation energy used in the destruction of the adhesive bond amounts to 36 kilocalories per mole, and in the stabilized polyethylene about 24 kilocalories per mole. This is probably due to the fact that the additions of stabilizer tend to inhibit the oxidizing process on

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ACCESSION NR: AP4022721

the adhesive interfaces of the metal. Our figures indicate that linear relationship applies only to stabilized polyethylene, and no such relationship is found in unstabilized adhesive. The calculation of the activation energy of the cohesive as well as the adhesive destruction requires that the time (kinetic) relationship of these two methods of destruction be taken into account. Orig. art. has: 3 figures, 3 formulas and 2 tables.

ASSOCIATION: Institut fizicheskoy khimii akademii nauk SSSR (Institute of Physical Chemistry, Academy of Sciences SSSR)

SUBMITTED: 28Oct63 DATE ACQ: 08Apr64 ENCL: 00

SUB CODE: CH NO REF SOV: 006 OTHER: 001

Card 2/2

SANZHAROVSKIY, A.T.; GRINYUTE, G.A.; LIKHTMAN, T.V.

Effect of the loading time and temperature on the strength of three-dimensional polymers. Dokl. AN SSSR 157 no.5:1196-1198 Ag '64. (MIRA 17:9)

1. Institut fizicheskoy khimii AN SSSR. Predstavleno akademikom P.A. Rebinderom.

SANZHAROVSKIY, A.T.

Destruction of polymer coatings by internal stresses. Dokl. AN SSSR 157 no.6:1345-1348 Ag '64. (MIRA 17:9)

1. Institut fizicheskoy khimii AN SSSR. Predstavleno akademikom P.A. Rebinderom.

L 61702-65 EPF(c)/EPR/EWP(j)/EWT(m)/T Pc-4/Pr-4/Ps-4 WW/RM

ACCESSION NR: AP5015966 UR/0314/65/000/006/0033/0036
678.742:620.17

AUTHORS: Avgustov, Yu. A. (Engineer); Chuvayev, V. F. (Engineer); Sanzharovskiy, A. T. (Candidate of technical sciences); Zubov, P. I. (Doctor of chemical sciences)

TITLE: Physico-mechanical properties of polyethylene spray coatings

SOURCE: Khimicheskoye i neftyanoye mashinostroyeniye, no. 6, 1965, 33-36

TOPIC TAGS: plastic, polyethylene, plastic coating

ABSTRACT: Physico-mechanical properties and internal stresses in polyethylene coatings flame-sprayed on sandpapered and degreased steel specimens were studied in an effort to find means for increasing their durability. Internal stresses of the [illegible] by the method described by A. T. Sanzharovskiy

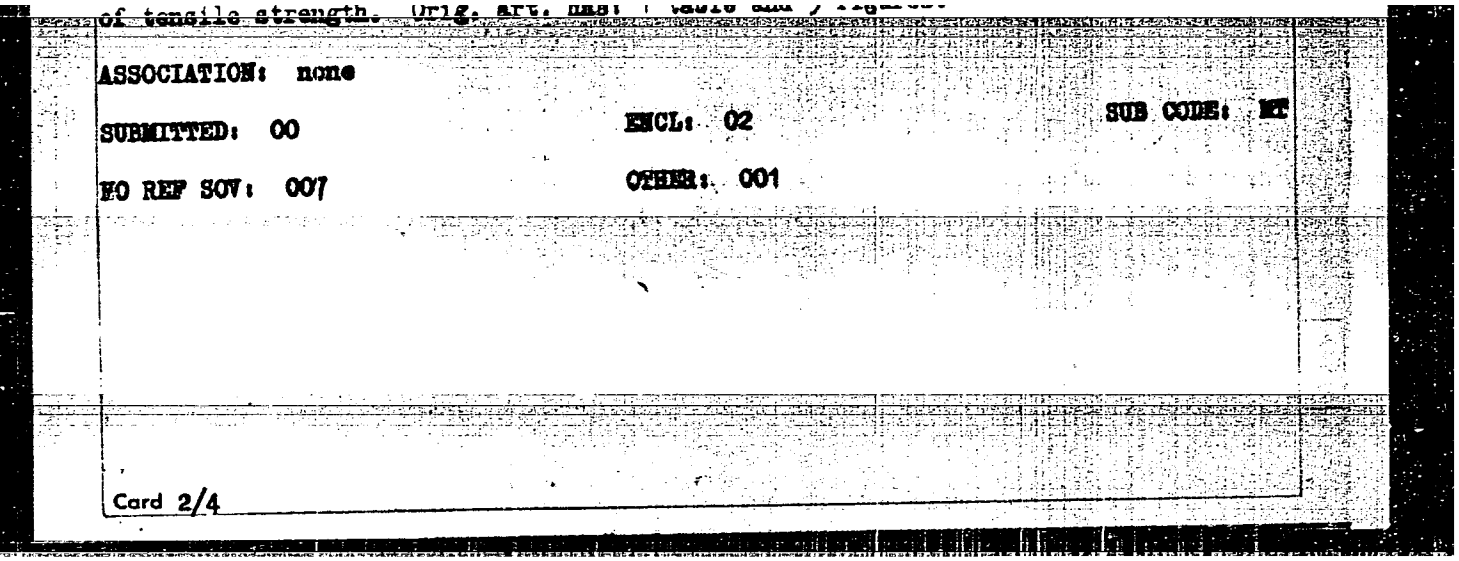
temperature for [illegible]

Card 1/4

L 61702-65

ACCESSION NR: AP5015966

and elasticity of plastic coatings. The study of the variations in the polymer molecular and supermolecular structure revealed its direct relation to the physico-mechanical properties; the strength of the coating grew during the initial heating



of tensile strength. Orig. art. has: 1 table and 7 figures.

ASSOCIATION: none

SUBMITTED: 00 ENCL: 02 SUB CODE: MT

NO REF SOV: 007 OTHER: 001

Card 2/4

L 61702-65

ACCESSION NR: AP5015966 ENCLOSURE: 01

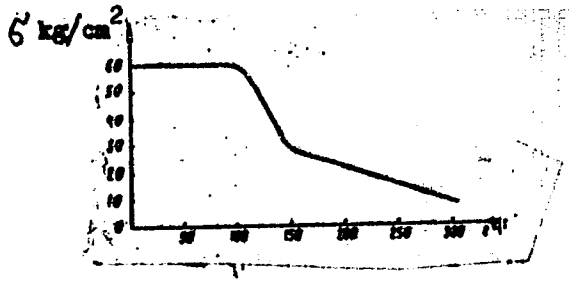


Fig. 1. Effect of thermal treatment temperature t on the magnitude of internal stresses σ in polyethylene coating (duration of treatment--4 hours)

Card 3/4

L 61702-65

ACCESSION NR: AP5015966 ENCLOSURE: 02

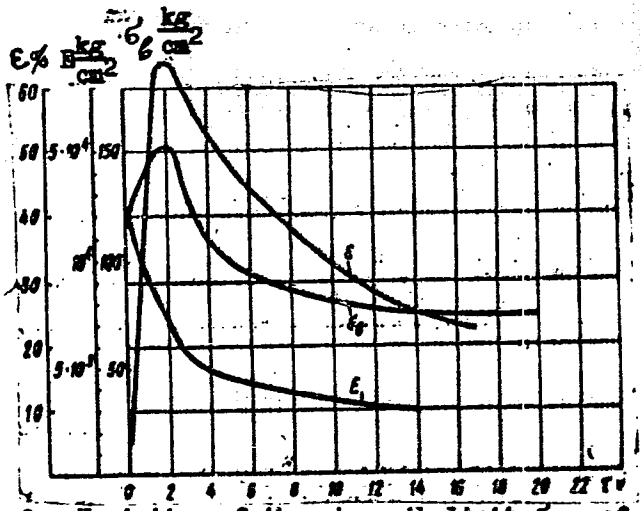


Fig. 2. Variation of the strength limit σ_t, of tensile elongation δ, and elasticity modulus E of polyethylene coating with respect to duration of thermal treatment t' at 200C

Card 4/4

L 12491-66 EWT(m)/EWP(j)/T RM

ACC NR: AP6001682 SOURCE CODE: UR/0303/65/000/006/0034/0039

AUTHORS: Maslennikova, N. L.; Sanzharovskiy, A. T.; Yakubovich, S. V.

ORG: none

TITLE: Changes of mechanical properties and internal stresses of perchlorovinyl resin coating during the process of atmospheric aging

SOURCE: Lakokrasochnyye materialy i ikh primeneniye, no. 6, 1965, 34-39

TOPIC TAGS: plastic coating, pigment, plasticizer, tensile stress

ABSTRACT: Changes in relative elongation, tenacity, and internal stresses occurring during aging of perchlorovinyl (I) coating which contains various plasticizers and pigments were investigated at the atmospheric station GIPI-4 in Moscow during April-November. It was found that introduction of 0.46 parts (by wt.) of alkyd resin (II) lowers by 2 to 3 times the elastic modulus, tenacity, and internal stress, while increasing rupture elongation. Introduction of 0.3 parts (by wt.) of chlorinated biphenyl (III) results in an even stronger plasticizing effect than addition of II. The combined effect of adding II and III is cumulative. Addition of pigments (TiO_2, ZnO, gas black) causes an increase in tenacity, in elastic modulus, and in internal stress, but produces a marked decrease in rupture elongation. The general conclusion was reached that spontaneous destruction of polymeric coatings occurs when internal stresses become equal to long-term tenacity. For rigid coatings,

Card 1/2

UDC: 667.613.2:620.193.2

L 13491-66
ACC NR: AP6001682

internal stresses correspond to ~ half of the short-term tenacity, for elastic coatings, to 10—15%. G. I. Kruchinina participated in this work. Orig. art. has: 3 tables, 9 figures, and 1 formula.

SUB CODE: 07/ SUBM DATE: none/ ORIG REF: 006

Card 2/2

L 14843-66 EWT(d)/EWT(m)/EWP(v)/EWP(j)/T/EWP(t)/EWP(k)/EWP(b)/ETC(m)-6

ACC NR: AP6005830 (A) SOURCE CODE: UR/0374/65/000/006/0108/0113

JD/WW/HM/EM/RM

AUTHOR: Yevminov, S. S. (Moscow); Sanzharovskiy, A. T. (Moscow); Zubov, P. I. (Moscow)

ORG: none

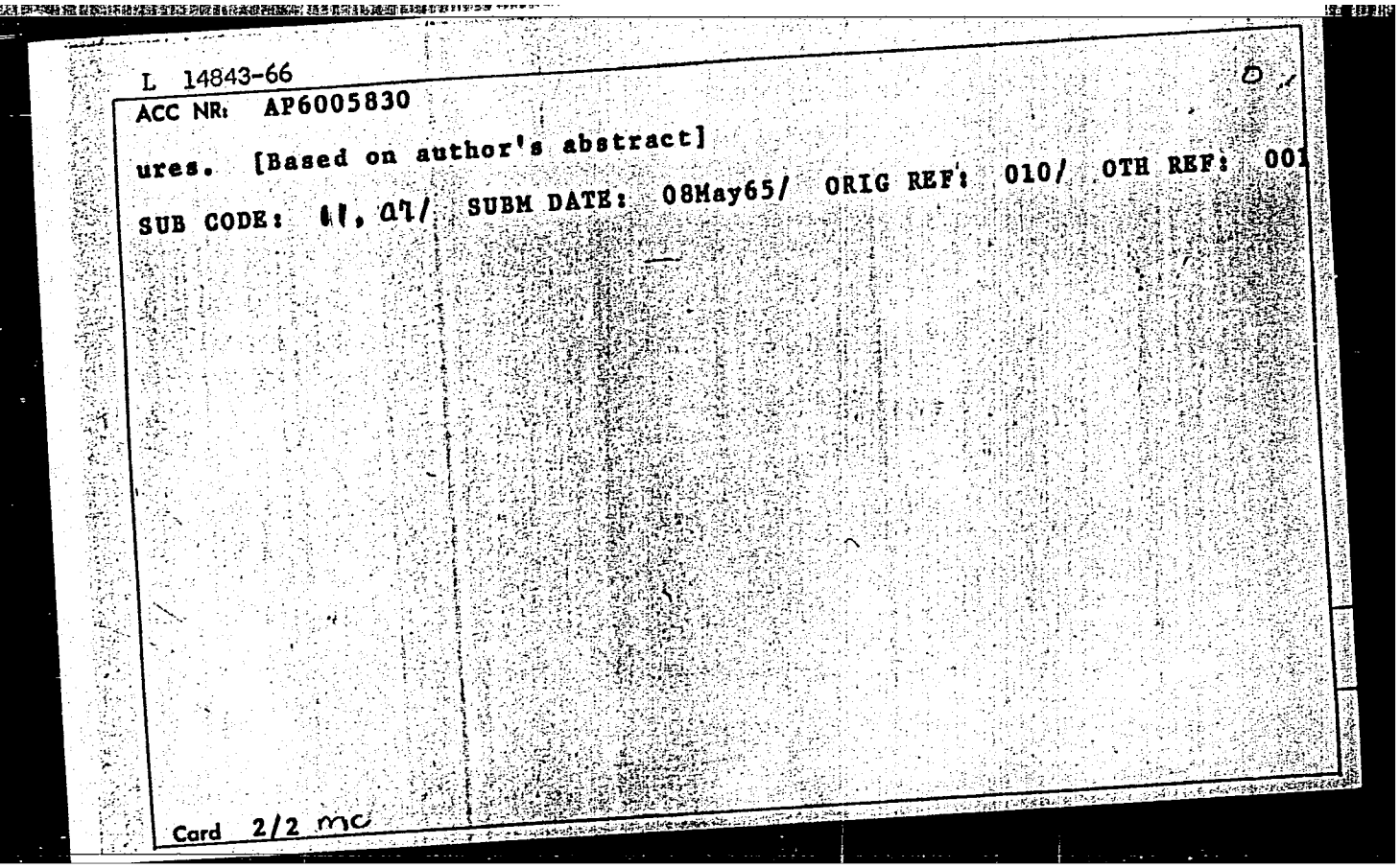
TITLE: Adhesion of ED-5 epoxy resin to metals

SOURCE: Mekhanika polimerov, no. 6, 1965, 108-113

TOPIC TAGS: high polymer, polyterpene resin, epoxy plastic, thermal stability, ~~metal hardening~~, tensile strength, adhesive bonding, temperature dependence, metal bonding, resin

ABSTRACT: A study revealed that the tensile strength and thermal resistance of adhesive joints of metal to ED-5 epoxy resin to metal passes through a maximum with an increase in concentration of the hardening agent (tetraethylenepentamine). The cohesion type failure turns into an adhesional one at a certain concentration of the hardener. The author assumes that changes in the nature of the polymer to metal bond are the cause of the relationship observed. The appearance of fractures or maxima at temperatures from 80 to 120C on the temperature dependence curves of the strength of adhesive joints is explained by changes in the physical state of the polymer. Orig. art. has: 10 fig.

Card 1/2 UDC: 678:621.792.053+678.6+539.61



L 14843-66

ACC NR: AP6005830

ures. [Based on author's abstract]

SUB CODE: 11, 07/ SUBM DATE: 08May65/ ORIG REF: 010/ OTH REF: 001

Card 2/2 mc

L 26142-66 EWT(m)/EWP(j)/T RM

ACC NR: AP6013476 (A) SOURCE CODE: UR/0374/66/000/002/0290/0292

AUTHOR: Sanzharovskiy (Jr.), A. T.; Yepifanov, G. I.

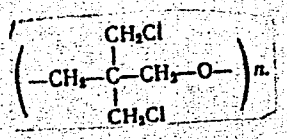
ORG: Moscow Institute of Electronic Machine Building (Moskovskiy institut elektronnogo mashinostroyeniya)

TITLE: Study of the structure of physicomechanical properties of pentone

SOURCE: Mekhanika polimerov, no. 2, 1966, 290-292

TOPIC TAGS: polymer structure, amorphous polymer, crystalline polymer, solid physical property, solid mechanical property

ABSTRACT: The structure and physicomechanical properties of pentone,



were studied on 0.3-0.4 mm films formed from melts of the polymer on metal substrates. X-ray structural analysis and an MIN-8 polarization microscope showed films cooled in liquid nitrogen to be amorphous and those cooled slowly in a furnace to be coarsely

UDC: 678:541.68.3

Card 1/2

L 26142-66

ACC NR: AP6013476

2

crystalline. Variations in elastic modulus with temperature are interpreted in terms of the structural changes in the pentone film. As the size of spherulites decreases, the strength and elongation at rupture increase. At subzero temperatures, the rupture of the films is brittle; as the temperature rises, it becomes highly elastic. A temperature rise from -60 to +100°C causes an increase in elongation at rupture from 2.5 to 300%; at the same time, the tensile strength goes through a maximum at -20°C. The specific wear of pentone films was found to be practically independent of the size of spherulites. Orig. art. has: 7 figures.

SUB CODE: 07/ SUBM DATE: 12Jul65/ ORIG REF: 004/ OTH REF: 000

Card 2/2

L 36153-66 EWT(m)/EWP(j)/T IJP(c) RM

ACC NR: AP6016309 (A) SOURCE CODE: UR/0314/66/000/001/0031/0034

AUTHOR: Avgustov, Yu. A. (Engineer); Sanzharovskiy, A. T. (Candidate of technical sciences); Zubov, P. I. (Doctor of chemical sciences) 37 B

ORG: none

TITLE: The effect of pigments on the physical and mechanical properties of polyethylene coatings produced by the spraying method

SOURCE: Khimicheskoye i neftyanoye mashinostroyeniye, no. 1, 1966, 31-34

TOPIC TAGS: plastic coating, polyethylene plastic, pigment, ~~surface property~~ internal stress, solid physical property, mechanical property

ABSTRACT: Internal stresses in polyethylene coatings are probably the result of a difference in the coefficients of thermal expansion of the coating and the support. The present article reports the results of an investigation of the effect of inorganic pigments on the physical and mechanical properties of polyethylene coatings, with the aim of seeking a method of increasing the resistance of these coatings to cracking. The investigations were made with high density Brand E polyethylene (MRTU 6 No. 854-61), unstabilized PNDG, stabilized PNDGS, PNDD

UDC: 678.742:620.17.001.5

Card 1/2

L 36153-66

ACC NR: AP6016309

polyethylene (TU GSNX 10.22.59). The pigments used were chromium oxide (GOST 2912-58) and lead oxide (GOST 5539-50). Experimental data, presented in a figure, show that the introduction of 2% total pigments into the spraying composition reduces the internal stresses by up to 50%. Further addition of pigment has less effect; chromium oxide has a greater effect than lead oxide. The article gives a formula for determining the internal thermal stresses in the coating as a function of the coefficients of linear expansion of the coating and the support. Other properties investigated were the changes in the strength, the adhesion, and the permeability as a result of the addition of pigments. Introduction of 1-2% total chromium oxide into the coating increases the strength by 17-43%; lead oxide has practically no effect. Large amounts of pigments lead to a gradual decrease in the strength. Addition of 1-4% total pigments increases the adhesion of the coating. Larger amounts lower the adhesion. Introduction of up to 2% total chromium oxide does not result in any substantial increase in the vapor permeability. Orig. art. has: 2 formulas and 4 figures.

SUB CODE: 11/ SUBM DATE: none/ ORIG REF: 010/ OTH REF: 002

Card 2/2 MLP

SANZHAROVSKIY, A.T.; YEPIFANOV, G.I.

Internal stresses in coatings. Part 2: Experimental methods of studying internal stresses in polymeric and lacquer paint coatings. Vysokom. soed. 2 no. 11:1703-1708 N '60. (MIRA 13:11)

1. Institut fizicheskoy khimii AN SSSR.
(Strains and stresses) (Protective coatings)

SANZHAROVSKIY, A.T.; POPOVA, O.S.

Method for determining the diffusion of cathode-reduced hydrogen through metals. Zhur. fiz. khim. 34 no. 11:2601-2602 N '60. (MIRA 14:1)

1. Akademiya nauk SSSR, Institut fizicheskoy khimii.
(Hydrogen) (Diffusion)

S/076/61/035/001/002/022
B004/B060

AUTHOR: Sanzharovskiy, A. T. (Moscow)

TITLE: Effect of SO_2 addition upon the electrolysis and properties of manganese precipitates

PERIODICAL: Zhurnal fizicheskoy khimii, v. 35, no. 1, 1961, 20 - 25

TEXT: The contradictions found in the literature concerning the effect of a SO_2 addition upon the electrolytic deposition of Mn are discussed. The author wanted to clarify this effect. A solution of 200 g/l $MnSO_4$ and 100 g/l $(NH_4)_2SO_4$ was first electrolyzed at 20°C, pH = 4.0, current density 25 a/dm^2. The precipitates were examined by X-rays and analyzed chemically. A ПМТ-3 (PMT-3) apparatus served to test the microhardness, and an МИМ-6 (MIM-6) microscope as well as an МЭ-3 (ME-3) electron microscope were used to study the structure. A dense, fine-grained precipitate formed at the beginning under the given experimental conditions. The grains had a spheroidal shape. The spheroids grew steadily over the whole

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Effect of SO_2 addition ...

cathode surface with increasing thickness of the precipitate. A change of the pH between 3.0 and 7.0, of current density between 10 and 40 a/dm^2 caused a change in the size of the spheroids, but not in the character of the precipitate. In the further experiments, the addition of SO_2 took place in the form of H_2SO_3 (0.1 - 0.5 g/l) in order to keep the experimental conditions comparable to those used by other researchers. The effect of SO_2 as a function of pH and current density was also examined. The results: 1) at pH $>$ 6.0, SO_2 does not exist in the free state and therefore has no effect upon electrolysis. 2) At pH = 4 - 6, SO_2 has an effect upon the chemical reaction in the solution. The current output on manganese is increased and the formation of dendrites on the cathode is reduced. 3) At pH $<$ 4.0, SO_2 takes part in the reactions on the electrode. The cathode polarization increases, the precipitates contain sulfur (0.1 - 0.06%), and a growth texture develops. Fig. 2 shows micropictures of the precipitate surface for various SO_2 concentrations. Crystals of manganese α-modification are formed. The mechanical properties of the precipitates

Effect of SO_2 addition ...

are strongly influenced at pH 4.0. Table 1 gives the microhardnesses that were measured at pH = 3.0 and at various SO_2 concentrations:

SO_2 content of solution, g/l:	0.085	0.17	0.26	0.3	0.34	0.38	0.43	0.5
microhardness, kg/mm^2:	760	790	980	1020	1030	1020	920	825
sulfur content in precipitate, wt%:	0.13	0.21	0.26	0.28	0.36	0.37	0.4	

Table 2 shows that on a constant SO_2 concentration (0.3 g/l) and varied current density an analogous change occurs in microhardness:

current density, a/dm^2:	10	15	20	25	30	35	40	45	50
microhardness, kg/mm^2:	430	520	940	1075	1100	1050	980	800	780
sulfur content, wt%:	0.17	0.21	0.36	0.27	0.31	0.36	0.37	0.41	

The author states that he has been the first to obtain crystalline manganese precipitates. R. I. Agladze is mentioned. There are 3 figures,

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Effect of SO_2 addition ...

2 tables, and 14 references: 5 Soviet-bloc and 9 non-Soviet-bloc.

ASSOCIATION: Akademiya nauk SSSR. Institut fizicheskoy khimii
(Academy of Sciences USSR. Institute of Physical Chemistry)

SUBMITTED: December 3, 1958

Legend to Fig. 2. Micropictures of the structure of the surface of precipitates, obtained by various SO_2 additions (pH of the solution 3.0, current density 25 a/dm^2, 20°C) a: 0.2 g/l SO_2; b) 0.3 g/l SO_2; c) 0.5 g/l SO_2

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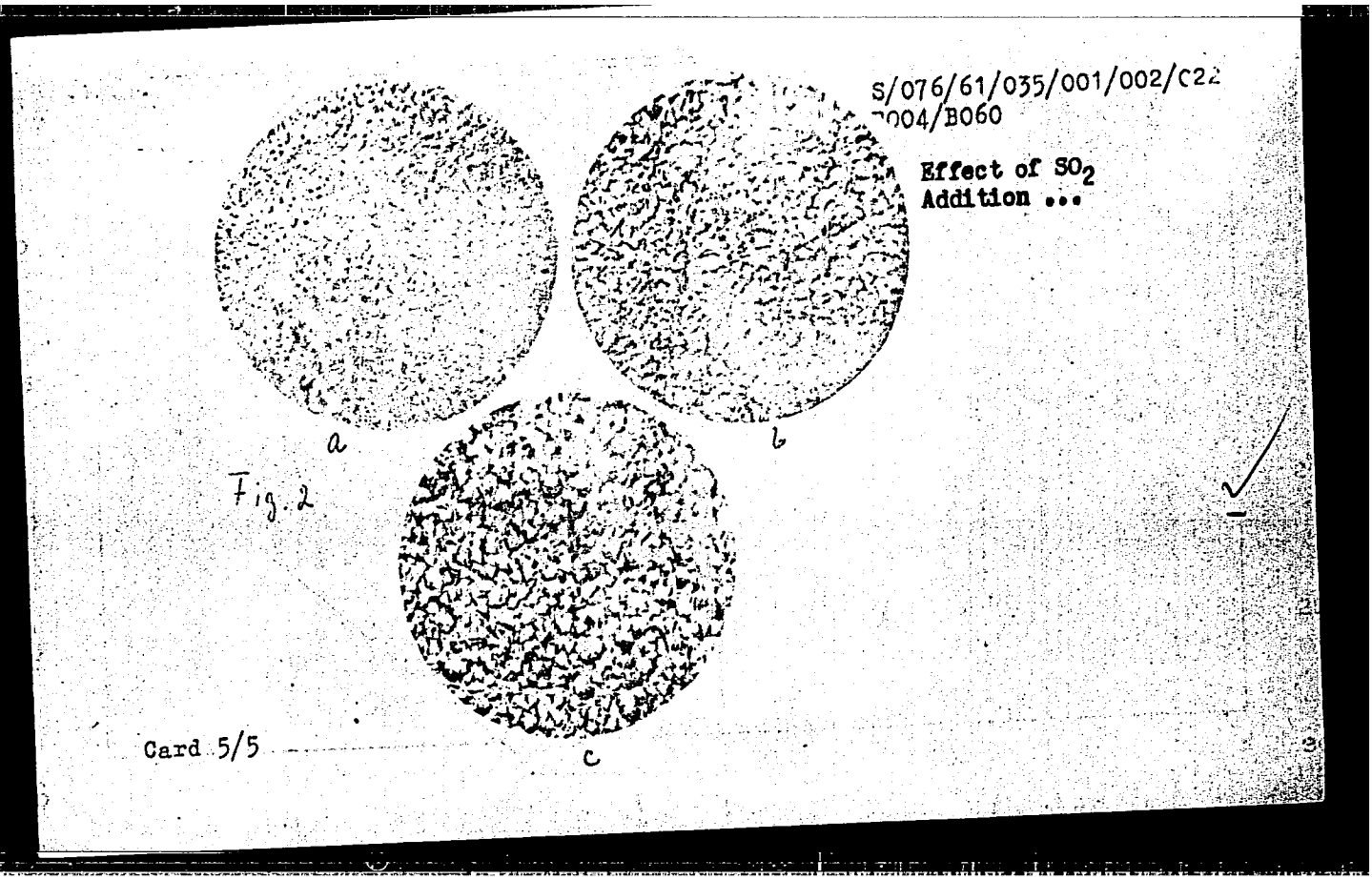

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S/020/61/136/003/023/027
B004/B056

AUTHORS: Popova, O. S. and Sanzharovskiy, A. T.

TITLE: Effect of Cathode-reduced Hydrogen on the Properties of Metals

PERIODICAL: Doklady Akademii nauk SSSR, 1961, Vol. 136, No. 3, pp. 654-656

TEXT: The effect of cathode-reduced hydrogen upon the mechanical properties of metals is studied. For this purpose, the effect produced by cathodic polarization upon rolled iron, rolled nickel and electrodeposited nickel is studied. The cathodic polarization was carried out in a 10% sulfuric acid with an addition of 0.1 g/l Na_2S, current density 100 ma/cm^2, temperature 20 - 25°C. The following measurements were made: 1) Measurement of the diffusion of H_2 into the metal; 2) Measurement of the deformation of unilaterally polarized lamellas due to H_2 adsorption; 3) Determination of the adsorbed H_2 by means of extraction in vacuum; 4) X-ray analysis; 5) Determination of the strength before and after cathodic polarization

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Effect of Cathode-reduced Hydrogen on the Properties of Metals

S/020/61/136/003/023/027
B004/B056

The following results are enumerated. A) Rolled nickel: Hydrogen diffuses only to a depth of 30μ; causing internal stress of the magnitude of 10 kg/mm^2. Brittleness occurs, and strength is decreased. This brittleness disappears after 60 - 70 hours of keeping the specimen in air. During this time the entire occluded hydrogen is eliminated. The strength increases as compared to the initial value by 5-6%. B) Electrodeposited nickel: Hydrogen diffuses deeper into the metal than in the case of rolled nickel, and in polished surfaces more quickly than in dim ones. Apart from the fact that in electrodeposited nickel cracks easily occur due to occluded hydrogen, the behavior is analogous to A). C) Rolled iron: Hydrogen penetrates very deep into the metal. Internal stress of about 15 kg/mm^2, increased brittleness, and local destruction occur. The major quantity of occluded hydrogen is eliminated completely only after 6 - 7 days, the strength, however, remains irreversible (15-20%), and flexibility is reduced by 50%. A change in the lattice parameters was, however, not observed. The following conclusions are drawn: The H_2 penetrated into the metal collected in the microcavities of structural defects and thereby causes internal stress. Part of the H_2 is adsorbed on the surface of the

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Effect of Cathode-reduced Hydrogen on the Properties of Metals

S/020/61/136/003/023/027
B004/B056

defects, reduces the surface energy and thus also the strength of the metal. While in the diffusion of H_2 into Ni the effect of the adsorptive reduction of strength predominates, in the diffusion of H_2 into Fe that of the effect of the internal stress predominates. Experiments showed that accelerated extraction of hydrogen in the vacuum also eliminated brittleness. This proves the connection between brittleness and hydrogen content. There are 4 figures and 5 references: 4 Soviet and 1 Polish.

ASSOCIATION: Institut fizicheskoy khimii Akademii nauk SSSR (Institute of Physical Chemistry of the Academy of Sciences USSR)

PRESENTED: July 26, 1960, by P. A. Rebinder, Academician

SUBMITTED: July 14, 1960

X

Card 3/3

KARMAZIN, Vitaliy Ivanovich, doktor tekhn. nauk, prof. Prinimali uchastiye: KRUTIY, V.V.; SANZHAROVSKIY, P.A.; GUBIN, G.V.; ZUBAREV, S.N., otv. red.; ARZAMASOV, N.A., red.izd-va; BOLDYREV, Z.A., tekhn. red.

[Modern methods of magnetic separation of ferrous metal ores] Sovremennye metody magnitnogo obogashcheniia rud chernykh metallov. Moskva, Gos. nauchno-tekhn. izd-vo lit-ry po gornomu delu, 1962. 658 p. (MIRA 15:3)
(Magnetic separation of ores) (Iron ores)

SANZHIYNV, G.A.

Session of the Buryat Consolidate Research Institut of the Siberian Branch of the Academy of Sciences of the U.S.S.R. devoted to the 300th anniversary of the voluntary incorporation of the Buryat lands into the Russian empire. Izv.Sib.otd.AN SSSR no.11:102-103 '59. (MIRA 13:4)
(Buryat-Mongolia--History)

SANZHIYEV, G.I.

Work results of the Institute in 1958. Krat. soob. BKNII no.1:3-11 '59. (MIRA 14:9)

(Buryat-Mongolia--Research)

SANZORITSKIY, M.

PHASE I BOOK EXPLOITATION SOV/3589

Sbornik radiokhimicheskikh i dozimetricheskikh metodik (Collection of Radio-Chemical and Dosimetric Methods) Moscow, Medgiz, 1959. 459 p. Errata slip inserted. 9,000 copies printed.

Eds. (Title page): N.G. Gusev, U.Ya. Margulis, A.N. Marey, N.Yu. Tarasenko, Yu.M. Shtukkenberg; Ed. (Inside book): V.I. Labaznov; Tech. Ed.: A.I. Zakharova.

PURPOSE: This collection of articles is intended for physicists, sanitation and public health doctors, chemists and other specialists working in radioactive dosimetry.

COVERAGE: This work discusses the following subjects: (1) principles of organizing sanitation and dosimetric control in institutions where work is carried on with radioactive substances; (2) radio-chemical and chemical methods for determining certain radioactive substances in samples of air, water, soil and foodstuffs; (3) physical methods of measuring contamination of the air by radioactive gases and aerosols, and methods for determining the level of contamination of working surfaces, clothes and leather coverings; (4) methods of measuring external streams of x- and gamma-radiation, and methods of individual dosimetric monitoring; (5) Absolute and relative methods of measuring the activity of solid and liquid radioactive sources. There are four appendixes dealing with methods of calculating the total dosage from sources of ionizing radiation, units of activity, and doses from natural (background) radioactivity in the calcium of foodstuffs. Sanitary regulations observed during transportation, storage, and handling of radioactive substances are discussed, as well as the permissible level of ionizing radiation. The editors thank Yu.V. Sivintsev and D.P. Shirshov. References appear at the end of each chapter.

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ZAIKA, N.I.; SANZHUR, I.Ye.

Stripping reactions on Mo^{97} and Te^{125}. Zhur. eksp. i teor. fiz. 44 no.3: 823-824 Mr '63. (MIRA 16:3)

1. Institut fiziki AN UkrSSR.
(Nuclear reactions) (Molybdenum isotopes) (Tellurium isotopes)

L 17609-63 EWT(m)/BDS AFFTC/ASD RDW S/056/63/044/003/007/053

AUTHOR: Zaika, N. I. and Senzhur, I. Ye.

TITLE: Stripping reaction on Mo^{97} and Te^{125}

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 44, no. 3, 1963, 823-824

TEXT: The study of the (d, p) reaction on Zr^{91} by N. I. Zaika and G. F. Nemets (Ref. 1: ZhETF, 40, 1019, 1961) and on Mo^{99} by N. I. Zaika, O. F. Nemets, and V. V. Tokarevskiy (Ref. 2: ZhETF, 44, 17, 1963) showed that the shell model selection rules play a substantial role during the transition to the first excited (2^+) states of the final nuclei. The present paper shows on Fig. 1a the angular distributions for incident deuteron energies of 13.6 Mev for protons during the transition to the first excited (2^+) state of Mo^{98} ($l_n = 0,2$ contributions present) and on Fig. 1б the distribution for protons corresponding to the ground state of Mo^{98} ($l_n = 2$ only). Solid curves are from the theoretical calculations of S. T. Butler (Ref. 3: Proc. Roy. Soc., A208, 559, 1951). Fig. 2 presents the angular distribution of the Te^{125} case together with other measurements performed

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S/056/63/044/003/007/053

B

L 17609-63

Stripping reaction...'

earlier for the case of the zero orbital angular moment neutron capture by lighter nuclei. The relative increase of the size of the secondary maximum with the increase in atomic weight is attributed to the distortion resulting from the Coulomb and nuclear interactions. There are 2 figures.

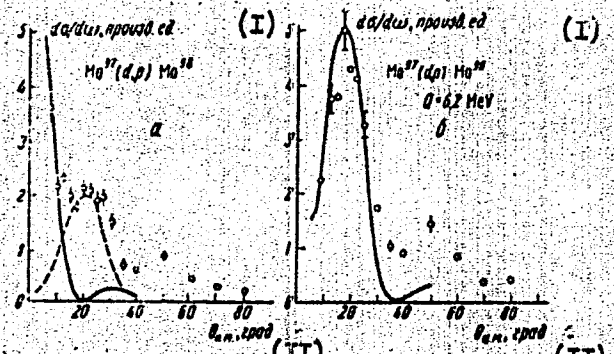

Fig. 1. I - arb units; II - degrees.

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Inst Physics AS UkrSSR

AFENDULI, K.; SAPA, I.

Tool for making hooks for use in producing reedwork panels.
Stroi. mat. 2 no.10:39 O '56. (MIRA 12:3)
(Reed (Betany))

SAPA, Stanislaw, mgr inz.

New designs of pumps for polluted liquids. Przegl mech 22 no.14: 444-446 25 Jl '63.

1. Zabrzanska Fabryka Maszyn Gorniczych, Zabrze.

SAPA, Stanislaw, mgr inz.

Parameter analysis of a series of pumps. Przegl mech 23 no. 5: 132-133 10 Mr '64.

1. Zabrzanska Fabryka Maszyn Gorniczych, Zabrze.

SAPA, V. A.

Mathematical Reviews
Vol. 14 No. 9
October 1953
Mechanics

Sapa, V. A. Some cases of motion of a cylinder rotating about its axis. Izvestiya Akad. Nauk Kazah. SSR 1951, no. 62, Ser. Mat. Meh. 5, 154–167 (1951). (Russian)

Consider the motion of a cylinder, revolving about its axis and subjected to a translation whose initial velocity is perpendicular to the direction of the axis of the cylinder. Such a cylinder is then acted upon, in addition to the forces of gravity and resistance (assuming that the Newtonian square law holds, i.e., the resistance is proportional to the square of the linear velocity), by the Magnus force. The author considers only the cases when the equations of motion of the center of mass of the cylinder can be integrated in finite terms. In particular, he studies two cases: the axis of the rotating cylinder is (i) horizontal and (ii) vertical. In case (i) the following subcases are considered: (a) the resistance force is small in comparison with the force of gravity and the Magnus force, and (b) the resistance force is small in comparison with the Magnus force, and the modulus of the difference between the Magnus force and the resistance is small in comparison with gravity. In case (ii) the subcases considered are: (a) as in case (i), and (b) the resistance, small in comparison with the Magnus force, is comparable to the force of gravity. The graphs of the trajectories described by the center of mass of the cylinder are sketched for various initial conditions. *E. Leimanis.*

SAPA, V.A.

Sapa, V. A. On the motion of a material point on the surface of a rotating rough inclined cylinder. Izvestiya Akad. Nauk Kazah. SSR 1952, no. 116, Ser. Astr. Fiz. Mat. Meh. 1(6), 151–170 (1952). (Russian. Kazak summary)

The cylinder is right and circular, its axis is fixed, and the rotation uniform. The equations of relative motion are written for the case when friction exists even though the particle is not in contact with the surface. Fortunately, in processing the equations, the particle is assumed to be on the surface. Unfortunately, the friction is assumed to have the components Nk_1 along, and Nk_2 across the generator, where N is the normal reaction, and k_1, k_2 are constants. Since the trajectory is not assumed to be helical, friction does not have a direction opposite to that of the velocity, and is not of the conventional kind. Fortunately, the paper concentrates on the cases when one of the k's is negligible. If it is k_1, one equation becomes that of a pendulum with dry friction (quadratic damping). Unfortunately, when k_2 is negligible, it becomes difficult to find the questions to the paper's somewhat elaborate answers. *A. W. Wundheiler.*

SAPA, V. A.

"Several Cases of the Motion of a Cylinder Rotating Around Its Axis", Izv. AN Kazakh. SSR, Ser. Astron., Fiz., Matem, i Mekhan., Vol 3, No 129, 1953, pp 67-68.

The author studies the alternating motion of a cylinder rotating around its axis to which an initial velocity of alternating motion v_0 has been imparted at the initial moment $t = t_0$. The direction of this initial velocity is perpendicular to the axis of the cylinder. The article is marred by several errors. (RZhMat, No 1, 1955)
SO: Sum. No. 443, 5 Apr. 55

SAPA, V.A.

A few cases of motion of a cylinder rotating around its own axis.
Izv.AN Kazakh.SSR.Ser.astron., fiz., mat. i mekh. no.129:67-88 '53.
(MLRA 9:5)

(Kinematics)

SOV/124-58-10-10768

Translation from: Referativnyy zhurnal, Mekhanika, 1958, Nr 10, p 7 (USSR)

AUTHOR: Sapa, V. A.

TITLE: Variational Principles in the Mechanics of a Variable Mass (Variatsionnyye printsipy v mekhanike peremennoy massy)

PERIODICAL: Izv. AN KazSSR. Ser. matem. i mekhan., 1956, Nr 5 (9), pp 116-125

ABSTRACT: Differential and integration principles for a variable-mass mechanical system are formulated. After the introduction of the reactive forces generated by emission and addition of mass into the investigation the results obtained seem to develop naturally from the corresponding propositions of a constant-mass system. The virtual-displacement principles of d'Alembert and Gauss are formulated. Equations of motion for a variable-mass system are deduced from the Gauss principle. The Ostrogradskiy-Hamilton principle deduced from the Lagrange equations is formulated and the reverse process is performed. In the last case the holonomity of the system is

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Variational Principles in the Mechanics of a Variable Mass

not stated clearly enough. As a sample, equations of motion of a variable-mass system revolving around an immovable axis are worked out.

G. K. Pozharitskiy

124-58-9-9484

Translation from: Referativnyy zhurnal, Mekhanika, 1958, Nr 9, p 4 (USSR)

AUTHOR: Sapa, V. A.

TITLE: The Equations of Motion of Systems of Mass Points Having Variable Mass in Generalized Coordinates. Canonical equations (Uravneniya dvizheniya sistemy material'nykh tochek peremennoy massy v obobshchennykh koordinatakh. Kanonicheskiye uravneniya)

PERIODICAL: Izv. AN KazSSR. Ser. matem. i mekhan., 1957, Nr 6 (10), pp 60-81

ABSTRACT: Examination of the motion of a system of N mass points having variable mass, wherein the masses of the points vary as a consequence of simultaneous irradiation and attachment of particles. For such a system having holonomous relationships the equations of motion are obtained in the form of the Lagrange equations, under the assumption that the masses of the points are functions of time only. Specific cases and examples are adduced. Furthermore, for the same conditions of the system, but assuming nonholonomous relationships, the equations of motion are found in terms of generalized coordinates with indeterminate factors, and also the Appel equations. Lastly, the

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124-58-9-9484

The Equations of Motion of Systems of Mass Points (cont.)

equations of the motion are adduced in canonical form. It should be noted that the Lagrange equations and the canonical equations for the case of mass changes due solely to irradation of the particles were obtained earlier by A. A. Kosmodem'yanskiy.

M. I. Yefimov

1. Mathematics--Applications 2. Appel equations--Applications 3. Lagrange equations--Applications

Card 2/2

SOV/124-59-7-7204

Translation from: Referativnyy zhurnal, Mekhanika, 1959, Nr 7, p 12 (USSR)

AUTHOR: Sapa, V.A.

TITLE: The Motion of a Material Point With Variable Mass for the Case of Simultaneous Emission and Accretion of Particles (General Theorems)

PERIODICAL: Uch. zap. Kazakhsk. un-ta, 1957, Vol 30, pp 115 - 125

ABSTRACT: Proceeding from the Meshcherskiy equation for the case of simultaneous separation and accretion of particles, the author establishes the theorems of momentum, moment of momentum, and kinetic energy of a point having variable mass in the absolute motion. The differential equation of the relative motion of a point with variable mass is written down for the case of simultaneous separation and accretion of particles, and the same general theorems for the relative motion are derived.

M.I. Yefimov

Card 1/1

SOV/124-59-7-7202

Translation from: Referativnyy zhurnal, Mekhanika, 1959, Nr 7, p 12 (USSR)

AUTHOR: Sapa, V.A.

TITLE: The Equations of Motion of a Holonomous System of a Variable Mass in Nonholonomous Coordinates

PERIODICAL: Uch. Zap. Kazakhsk. un-ta, 1957, Vol 30, pp 142 - 147

ABSTRACT: The author analyzes the motion of a holonomous system of N material points, of which e points have constant mass, k points vary their mass due to emission of particles, and r points vary their mass due to simultaneous emission and accretion of particles. The motion equations are obtained in holonomous coordinates, which represent a generalization of the Boltzmann-Hamel equations. These equations are found for the cases when the variable masses are functions of: a) time only, b) generalized coordinates only, c) generalized velocities only, d) time and generalized velocities.

M.I. Yefimov

Card 1/1

MOLYUKOV, I.D.; SAPA, V.A.

Tensor form of motion equations for a variable mass system.
Izv.AN Kazakh.SSR.Ser.mat. i mekh. no.7:89-94 '59.
(MIRA 12:5)

(Motion) (Differential equations, Partial)

24 4/00

S/124/62/000/003/003/052
D237/D301

AUTHOR: Sapa, V.A.

TITLE: Variational principles in variable-mass mechanics

PERIODICAL: Referativnyy zhurnal, Mekhanika, no. 3, 1962, 13, abstract 3A86 (Izv. AN KazSSR. Ser. matem. i mekhan., 1960 (1961), no. 9 (13), 116 - 123)

TEXT: Formulated are: The D'Alembert-Lagrange principle and the principle of least action for cases when the reaction forces are given in terms of absolute velocities of attaching or detaching particles as well as the Ostrogradskiy-Hamilton principle for the case when the reaction forces are given in terms of relative velocities of the same particles. [Abstractor's note: Complete translation].

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SAPA, V. A.

On the Rectilinear Motion of an Earth-surface Jet-propelled Vehicle. p 167

SAPA, V. A.

Inverse Problems in the Analytical Mechanics of Variable Mass. p. 170

TRANSACTIONS OF THE 2ND REPUBLICAN CONFERENCE ON MATHEMATICS AND MECHANICS (TRUDY VTOROY RESPUBLIKANSKOY KONFERENTSII PO MATEMATIKE I MEKHANIKE), 184 pages, published by the Publishing House of the AS KAZAKH SSR, ALMA-ATA, USSR, 1962

L 15757-63 EPA(b)/EWT(1)/FCC(w)/FS(v)-2/EDS/T-2/ES(v) AFFTC/ESD-3/APGC
Pd-4/Pe-4/Pg-4/Po-4/Pq-4 GM
ACCESSION NR: AR3002640 S/0124/63/000/005/A012/A012

SOURCE: RZh. Mekhanika, Abs. 5A62

AUTHOR: Sapa, V. A.; Krivolapova, L.

TITLE: Inverse problems in variable mass mechanics for curvilinear motion in polar coordinates

CITED SOURCE: Tr. Mekhan.-matem. fak. Kazakhsk. un-t, v. 1, no. 2, 1960, 203-207

TOPIC TAGS: motion equation, Meshcherskiy, curvilinear motion, polar coordinate

TRANSLATION: The solution is given to the problem of determination of the law of variation of mass with time if the law is known for the motion of a point with variable mass. The motion is considered to be plane, and the equation of motion is presented in the Meshcherskiy form. I. S. Archanykh

DATA ACQ: 14 Jun 63 SUB CODE: PH ENCL: 00

1/1
Card

SAPA, V.A.; TRATSEVSKAYA, Yu.P.

Motion of a solid body of variable mass with a single fixed point. Trudy Sekt. mat. i mekh. AN Kazakh. SSR 2:138-160 '63. (MIRA 16:10)

SAPA, V.A. (Alma-Ata)

"Elementary theory of the 'tip-top'"

Report presented at the 2nd All-Union Congress on Theoretical and Applied Mechanics, Moscow 29 Jan - 5 Feb 64.

L 43655-66 EWT(1) IJP(c)
ACC NR: AP6022430 SOURCE CODE: UR/0361/66/000/001/0095/0097

44
B

AUTHOR: Sapa, V. A.; Pak, Z. N.

ORG: none

TITLE: A case about the motion of a point of variable mass

SOURCE: AN KazSSR. Izvestiya. Seriya fiziko-matematicheskikh nauk, no. 1, 1966, 95-97

TOPIC TAGS: ordinary differential equation, variable mass system, GRAVITATION, ACCELERATION

ABSTRACT: The equation for approaching points is

$$(u\dot{\xi} - \dot{\eta})\ddot{u} - 2\dot{\xi}u^3 - \ddot{\xi}u\dot{u} + (\ddot{\eta} - g)\dot{u} = 0, \qquad (1)$$

where ξ, η are coordinates of a moving point A, x, y are those of a following point of variable mass N, g is the acceleration due to the force of gravity and $u = \dot{y}/\dot{x}$. A case for which the equation is solvable in quadratures is described along with the solution. Orig. art. has: 22 formulas.

SUB CODE: 12,20/ SUBM DATE: 00/ ORIG REF: 001/ OTH REF: 000

LS
Card 1/1 LS

L 47157-66 EWT(1) IJP(c)

ACC NR: AR6000696 SOURCE CODE: UR/0124/65/000/009/A008/A008

29 B

AUTHORS: Sapa, V. A.; Tratsevskaya, Yu. P.

TITLE: Series solution of the problem of heavy rigid body motion with variable mass and a single fixed point

SOURCE: Ref. zh. Mekhanika, Abs. 9A73

REF SOURCE: Sb. tr. soiskateley i aspirantov. M-vo vyssh. i sredn. spets. obrazovaniya KazSSR, v. 1, no. 2, 1963(1964), 3-13

TOPIC TAGS: power series, approximation method, convergent series, motion equation

ABSTRACT: The solution of the equations of motion of a rigid body with variable mass leads to a power series form under the assumption of boundedness, derived from the coefficients of the equation. The coefficients of the desired series are determined from initial conditions in the form of specially constructed operators. The convergence of the constructed series is proved. As an example the solution of a special problem is considered. O. A. Goroshko [Translation of abstract]

SUB CODE: 20, 12

Card 1/1 egh

SAPACIL, Frantisek

"The Blood Picture During Traumatic Inflammations in Cattle," Prague, Veterinarni Medicina, No. 12, Dec 60, p. 893.

Affiliation: Dept. of Internal Diseases, Veterinary Faculty at VSZ in Brno.

SAPACKY, Jaroslav

Auto-antibodies and the pathogenesis of rheumatic fever. Scr. med. fac. med. Brunensis 35 no.5:207-234 '62.

1. I. detska klinika lekarske fakulty University J.E. Purkyne. Prednosta prof. MUDr. Z. Brunecky.
(RHEUMATIC FEVER) (AUTOANTIBODIES)

SAPADNYUK, I.P.

Evaluation of the Caspian white melilot plant as a feed and its toxicological evaluation. Veterinariya 27, No.6, 51-2 '50. (MLRA 3:4)
(CA 47 no.18:9566 '53)

1. Agr. Inst. Lwow, Poland.

L 65075-65 EWT(d) IJP(c)

ACCESSION NR: AP5020292 UR/0208/65/005/004/0638/0647
513:517.944/.947

AUTHOR: Sapagovas, M. P. (Vil'nyus) 44,55

TITLE: Method of finite differences for solving quasi-linear elliptic equations with discontinuous coefficients

SOURCE: Zhurnal vychislitel'noy matematiki i matematicheskoy fiziki, v. 5, no. 4, 1965, 638-647

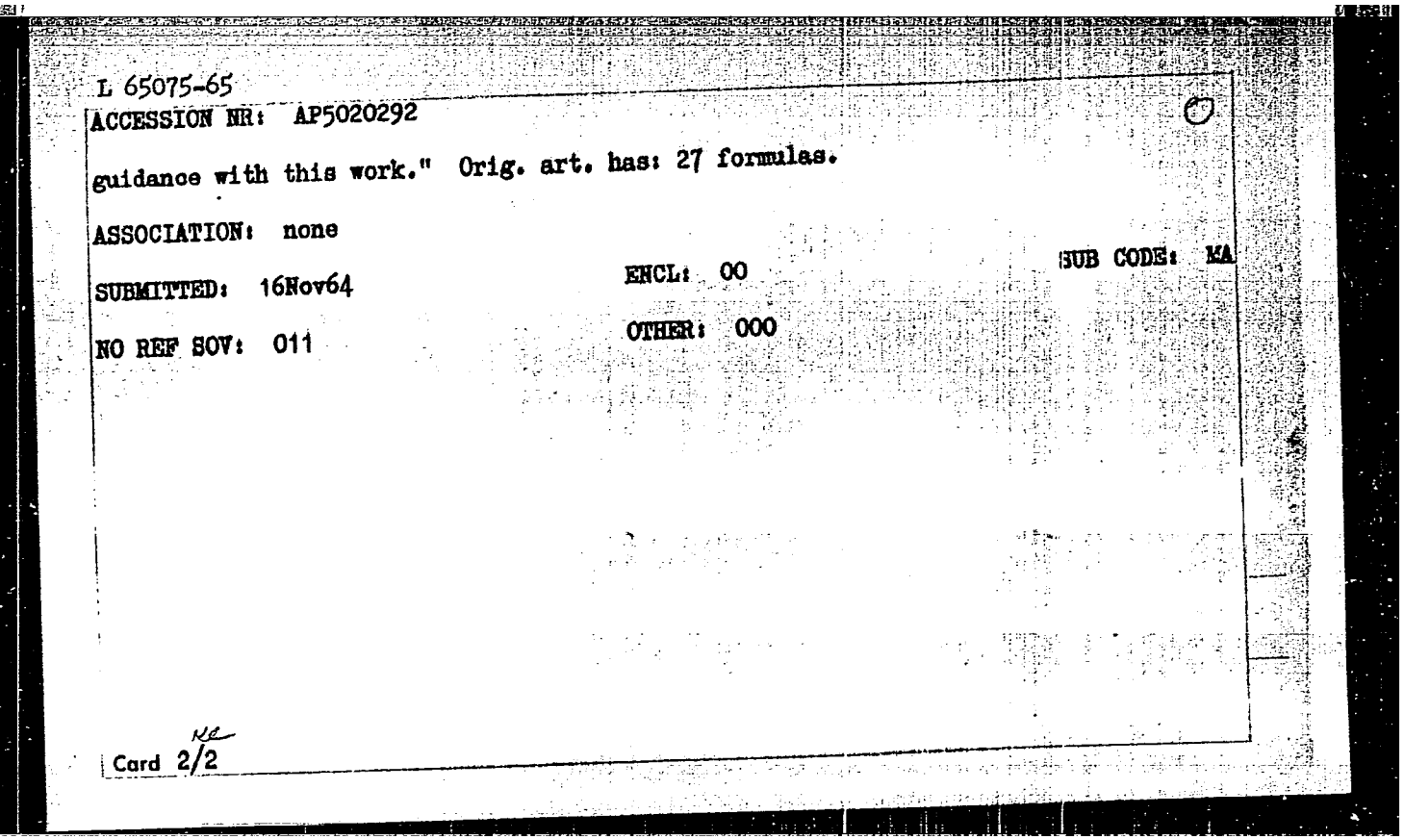
TOPIC TAGS: difference equation, partial differential equation, elliptic equation, approximation calculation

ABSTRACT: The author considers the equation

$$\sum_{i=1}^{m} \frac{\partial}{\partial x_i}[a_i(x, u, p_j)] - a_0(x, u, p_j) = 0. \quad (1)$$

He constructs various difference schemes for boundary problems related to (1) and in a metric given by him shows that under given conditions these difference schemes converge at the rate of a geometric progression. He applies his results to compute the magnetic field in a piecewise homogeneous nonlinear medium. "In conclusion I use this opportunity to express my deep gratitude to V. Ye. Shamanskiy for his

Card 1/2



L 65075-65
ACCESSION NR: AP5020292

guidance with this work." Orig. art. has: 27 formulas.

ASSOCIATION: none

SUBMITTED: 16Nov64 ENCL: 00 SUB CODE: MA

NO REF SOV: 011 OTHER: 000

Card 2/2

SAPAGOVAS, M.P.

Iteration method for solving a linear ordinary differential equation. Vych. mat. [Kiev] no. 1:124-133 '65 (MIRA 19:2)

L 16456-66 EWT(d) IJP(c)

ACC NR: AT6023075 SOURCE CODE: UR/2924/65/005/002/0291/0302

28

B+1

AUTHOR: Sapagovas, M. P.

ORG: none

TITLE: Solution of quasilinear elliptic equations by the finite difference method

SOURCE: Litovskiy matematicheskiy sbornik. v. 5, no. 2, 1965, 291-302

TOPIC TAGS: differential equation, finite difference method, finite difference, second order differential equation, ELLIPTIC DIFFERENTIAL EQUATION, DIRICHLET PROBLEM

ABSTRACT: The Dirichlet problem for second-order quasilinear elliptic differential equations has been considered using the finite difference method. Proof of the convergence of the solution of difference equations with the solution of the differential equation is not based on the maximum principle. The system of nonlinear difference equations is solved by the iterative method. The author thanks V. Ye. Shamanskiy for supervising the study. Orig. art. has: 25 formulas. [Based on author's abstract] [NT]

SUB CODE: 12/ SUBM DATE: 10Oct64/ ORIG REF: 008/ OTH REF: 004/

Card 1/1 fv

ACC NR: AR6035020 SOURCE CODE: UR/0044/66/000/008/B108/B108

AUTHOR: Sapagovas, M. P.

TITLE: Solution of quasilinear elliptic equations by the method of finite differences

SOURCE: Ref. zh. Matematika, Abs. 8B531

REF SOURCE: Lit. matem. sb., v. 5, no. 4, 1965, 637-644

TOPIC TAGS: elliptic differential equation, finite difference, boundary value problem, second boundary value problem

ABSTRACT: The results obtained in the author's earlier work (Lit. matem. sb., 1965, 5. no. 2, 291-302) are correlated and receive further development. The solution of the secondary boundary-value problem for the special case of the quasilinear elliptic differential equation with a divergent principal part by the method of finite differences, is discussed. The equation

$$\frac{\partial}{\partial x}\left(\mu(T^2)\frac{\partial u}{\partial x}\right)+\frac{\partial}{\partial y}\left(\mu(T^2)\frac{\partial u}{\partial y}\right)-f(x, y)=0,$$

where

$$T^2=\left(\frac{\partial u}{\partial x}\right)^2+\left(\frac{\partial u}{\partial y}\right)^2,\ \mu(T^2)>\sigma>0.$$

UDC: 518:517.944/947

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ACC NR: AR6035020

is studied. A difference scheme with an approximation error of the order of $O(h^2)$ is used in finding an approximate solution of the problem. The convergence of the iterative process is studied. It is shown that if the error of boundary condition approximation is of the order of $O(h^2)$, then the iterative process also converges at a rate of $O(h^2)$. It is stated that the theory presented is valid for any number of variables. I. Shelikhova. [Translation of abstract] [DW]

SUB CODE: 12/

Card 2/2

L 46189-66 EWP(m)/EWP(j)/EWT(l)/EWT(m) RM/WW/JW

ACC NR: AR6000705 SOURCE CODE: UR/0124/65/000/009/B035/B035

AUTHOR: Sapunkov, Ya. G.

13
B

TITLE: Circular cone at angle of attack in the hypersonic zone

SOURCE: Ref. zh. Mekhanika, Abs. 9B231

REF SOURCE: Sb. Transzvuk. techeniya gaza. Saratov, Saratovsk. un-t, 1964, 164-177

TOPIC TAGS: hypersonic flow, ideal gas, approximation method, entropy

ABSTRACT: The hypersonic flow of an ideal gas over a circular cone is considered at an angle of attack. A method of successive approximations is outlined which would permit finding a uniform approximation to the exact solution in the region between the shock wave and the cone, including the vortical layer. The fundamental concept of the method consists of introducing a special system of coordinates for the entropy equation which with the removal of a logarithmic singularity becomes possible. This is obtained by using the method of small parameters. A solution is obtained with accuracy up to and including the second order. Comparison is made with the results of Cheng's work and the author's previous work (Cheng, H. K., J. Fluid Mech., 1962, No. 2, 160--191--RZhMekh, 1962, 11B96; Sapunkov, Ya. G., Prikl. matem. i mekhan., 1963, 27, No. 1, 190--192--RZhMekh, 1964, 8B251). V. M. Kuptsov [Translation of abstract]

SUB CODE: 20

Card 1/1

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A Hungarian motorcycle. p. 116. TECHNICKA PRACA. (Statne nakladatelstvo technickej literatury) Vol. 6, no. 2, Feb. 1954.

SOURCE: East European Accessions List, Vol. 5, no. 9, September 1956

TAPAK, J.

Mechnaization of road transportationin Hungary. p. 181. TECHNICKA PRACA. (Statne nakladatelstvo technickej literatury) Vol. 6, no. 3, Mar. 1954.

SOURCE: East European Accessions List, Vol. 5, no. 9, September 1956

SAPAK, J.

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SO: Monthly List of East European Accessions, (EEAL), LC, Vol. 4, No. 1, Jan. 1955, Uncl.

SAPAK, J.

New types of sport and racing automobiles, p. 270, TECHNICKA PRACA (Statne nakladatelstvo technickej literatury) Baratislava, Vol. 7, No. 6, June 1955

SOURCE: East European Accessions List (EEAL) Library of Congress, Vol. 4, No. 12, December 1958

SAPAK, J.

Transportation equipment is helping mechanization. p. 459. (TECHNICKA PRACA, Vol. 9, No. 7, July 1957, Bratislava, Czechoslovakia)

SO: Monthly List of East European Accessions (EEAL) LC, Vol. 6, No. 12, Dec 1957. Uncl.

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Development of new products. Tech praca 15 no.11:874-878 N'63.

1. Vyvojovy zavod, Tatra, Bratislava.

SAPAK, Jan, inz. CSc.

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SAPAK, Jan., inz. CSc.

Repair of transporation means. Tech praca 16 no. 7:494-499 Jl '64.

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